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# The Recent Development of Banknotes in Australia: Progress at Note Printing Australia

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From a long association with our country's banknote printer I have developed a very private way of classifying money: to me, coins are like boiled lollies and banknotes like fine quality chocolates. By this classification you will rightly deduce that I have a strong passion for banknotes—their production, their study and their collectability.

The two forms of circulating currency, notes and coins, have in more recent times undergone significant changes. Both of Australia's circulating currency makers, Note Printing Australia and the Royal Australian Mint, have added anti-counterfeiting security features to their respective circulating products.

The polymer note is well documented as a force to resist successful copying. Apart from security edges on coins, the Royal Australian Mint has experimented with the use of bi- and even tri-metallic coins; but so far this has been intended for purely collector purposes. Australia has not, as yet, signalled its intention to introduce circulating coins in more than one metal as an added security measure. An increasing number of other countries, however, are already issuing lower

circulation.

Australia found it necessary to address the problem of counterfeit notes when shortly after the issue of its new decimal paper note series in 1966 some counterfeit ten dollar notes were detected in circulation.

These counterfeits displayed the use of modern technology in their manufacture and this prompted the Reserve Bank to commission a search for up-to-date technologies to protect their circulating notes. Following extensive research into various types of paper, the medium which had served the world's note printers for hundreds of years, the focus turned to polymer as a possible secure and durable alternative. By the mid 1980s sufficient progress had been made to enable the mass-production of a banknote using this new technology, in particular, one which could commemorate Australia's Bi-Centenary on 26 January 1988.

So, after 22 years of research and development a beautifully designed ten dollar plastic note was eventually introduced, for issue only during 1988, and to circulate parallel to the existing

denomination bi-metallic coins for general

paper note of the same denomination. This was the world's first non-fibrous and

non-porous banknote and it was capable of being printed on conventional security printing presses.

It was found, however, that like other people around the world, Australians did not like change to their currency and public acceptance here was met with the usual resistance. There was the suggestion that this new note was virtually indestructible and this claim challenged some people to test the note to its limits by deliberately subjecting it to severe abuse.

An extensive field test was then conducted in Newcastle, New South Wales, where all paper ten dollar notes were temporarily suspended from issue. This was done to enable meaningful results to be gathered from the new polymer note being circulated exclusively in that region—a proven test ground, by the way, for many consumer products. Many qualities incorporated in the new polymer notes were found to come through with ‘flying colours’. Results showed that soiling of the note in circulation was minimal and the general reaction from the public was that the plastic note did not soil at all and was, in fact, much cleaner to handle than paper notes. Positive feedback was also received from financial institutions, suppliers of note processing machines, and people involved with handling notes in their day to day business.

This general acceptance resulted in the development of a new generation of notes with the following characteristics: they were difficult to counterfeit or

simulate, were easy to identify as genuine by the handler, were durable and therefore cost effective, gave superior machine

processing performance, and were environmentally friendly.

For hundreds of years banknotes have been made from rag-based paper. Today, however, there are serious doubts that paper remains a viable material for producing banknotes when banknote issuers are faced with the challenge of increasingly sophisticated counterfeiting techniques. Experience demonstrates that the introduction of the polymer note is a major barrier to the would-be counterfeiter. This represents a significant achievement in safeguarding our note currency, given the increasing availability of colour copiers and scanners. No matter how complex the design, modern reproduction equipment simply copies what it recognises—with increasingly greater accuracy.

But modernising our banknotes raises the numismatic question of whether the term ‘paper money’ should also be modernised to become ‘currency notes’ or simply ‘banknotes’ as a more accurate description. Internally, the Reserve Bank of Australia calls its major circulating product ‘currency notes’. However, I would be very surprised if the general use of the term ‘banknotes’ would be disputed. The point here is that in excess of twenty countries, with every populated continent represented, have adopted a note or a series of notes manufactured in a substrate other than paper. This is not an obscure statistic. Both paper and polymer and for that matter notes made from any other new

material that might be manufactured in the future would also come under the term ‘currency notes’ or just plain ‘banknotes’.

The term ‘paper’ has been a proper

term in the past but there is a strong case now for the category of 'paper money' to be phased out in lieu of a more accurate term, 'currency notes', or just plain 'banknotes'. More than likely the term 'banknotes' would be more readily accepted than 'currency notes'. My own thoughts are for the single term 'banknotes' to be adopted, as the vast majority of the world's currency notes are issued by central or other note issuing banks. So, technically, apart from wartime issues, all notes issued as legal or non-legal tender could be correctly categorised as 'banknotes'.

To this end I now encourage all numismatic publishers, dealers, collectors and those present here today who still use the title 'paper' to adopt a more descriptive term, thus superseding the outdated 'paper money', 'paper notes' or 'paper currency' references.

Note Printing Australia has in recent times introduced changes to our banknotes. For example, in 1993, for the first time, it has incorporated the year of printing to follow the serial number prefix letters. This now means that in Australia both types of our currency, coins and notes, can be identified by their respective years of issue. This is just one thing that the banknote now has in common with its currency partner, the coin.

Traditionally the study of currency has tended to focus more on coins. The once forgotten or ignored banknote, however, offers many interesting collecting features and themes. On the modern paper and polymer banknote we can discover: different serial number colours and styles of typeface, prefix and suffix letters or both, authorised signature combinations, transparent or clear windows, Braille,

ever increasing printing techniques and micro printing, latent images, holograms, optically variable devices, security threads, fluorescent identifying features, perfect registration of designs, engraved portraits and watermarks, printing plate identification letters and numbers, legal and non-legal tender clauses including its backing by gold or silver, vibrant colours, and some secrets yet to be discovered by the obsessed banknote enthusiast.

You may recall Australia's then radically designed paper decimal notes when they were introduced on 14 February 1966. These were the result of Reserve Bank Governor Dr Herbert 'Nugget' Coombs' desire to have a new series of notes which would stand out from all others in the world as distinctively Australian. These highly coloured and very vibrant masterpieces possessed: the brown hues of the earth, the greens of the grasses, the purples of the mountains, the blues of the sky, the reds of the outback, the golds of the sands, and the almost unbelievable 23 subtle icy colours of the Australian Antarctic Territory.

A coin can't offer such a diverse range of attractive and symbolic colours. Yet, like a coin, the banknote is currency and indeed, a complex numismatic item capable of being extensively researched.

On the subject of protecting the environment, it is now prudent to be able to claim that the material used for our current notes lasts far longer than its old paper equivalent. Previously, after a relatively short life in circulation, our paper notes met a fiery end and the gaseous residue from the destruction process entered our atmosphere in significant quantities. These paper notes can now be considered as being 'from

the past'. The new polymer notes have the advantage of not only lasting longer in circulation but can be recycled to provide useable material for a variety of applications.

As far as portraits on our notes are concerned, the new decimal series provided an opportunity to include a mix of Australian and English explorers and dignitaries on both sides of the notes. However, the one dollar denomination bears only one portrait, that of our present Queen. Caroline Chisholm became the first female (apart from the Queen) to be portrayed on an Australian note. She was chosen for this honor because of the way in which she encouraged women and families to migrate from England to Australia. In 1841 she established the Female Immigrants Home in which girls, newly arrived from England, could live until they found work.

Ironically one Englishman, Francis Greenway, depicted on the ten dollar paper note, was transported to the colony for counterfeiting. He is featured on the front of the very note which caused us all the counterfeiting trouble we had back in 1966. In spite of his infamous past Greenway was chosen, and is best remembered for the legacy he has left in Sydney, from his stone masonry skills rather than his earlier counterfeiting exploits.

The Reserve Bank of Australia does not differentiate between the front and back of its notes and thus, by avoiding the problem of deciding which of the two portraits represents the more important person who should appear on the 'front', has attempted to contribute positively to the social equality issue.

For just over 80 years Australia had imported the watermarked paper on which it printed its currency notes at considerable taxpayer's expense. Today, the materials used for polymer note production are available in Australia.

Just as for coins, some countries are not in a position to produce their own banknotes. But with astute marketing, Note Printing Australia now sources, prints and licenses banknotes to be printed for a growing number of overseas customers as an important export. For example, I understand that a four member delegation from Turkey visited the Reserve Bank here in Sydney recently, keen to discuss the benefits of the polymer note technology, and then went on to visit our country's note printer in Craigieburn. It's nice to know that Australia makes extra money from making 'money'. We have effectively reversed our need to import to the ability to export.

Now let me share with you a little bit of numismatic trivia, in light of the fact that there is a predominance of topics at this conference covering ancient coinage. Let us look very briefly at the Republic of Romania, located in South Eastern Europe. The name Romania comes either from the word Rome (Latin: Roma), or from Romania (Eastern Roman Empire), and confirms the country's origins as a

Roman province. It was Australia that brought modern day Romania's banknotes into the 21<sup>st</sup> century by producing a polymer note for issue there to celebrate the year 2000. Now, Romania has upgraded the full range of its old paper currency notes by using the polymer note technology.

When Australia was still using

currency notes made from paper the average life of a note circulating in our harsh conditions was found to be between three months for the one dollar note and up to two years for the one hundred dollar denomination. Now, our polymer notes have a significantly longer average life of up to seven times that of their superseded paper equivalent.

For the collector of world notes, the paper banknote has tended to give rise to constant problems with grading. As its construction is of a cotton fibre base it can be washed or dry-cleaned. Sadly, some unethical people have traded or sold treated notes at their new, artificially achieved grading—one that rarely stands up to eventual close scrutiny. Because of its comparative toughness the polymer note is more likely to remain in new or uncirculated condition, even with minor handling, and seems to pose fewer grading problems for the collector.

Since the introduction of polymer technology Note Printing Australia has implemented an environmental management policy to cover all stages of the manufacture of banknotes and other security printed products. All employees are responsible for ensuring operations and activities are conducted in an efficient and environmentally friendly manner. A high standard of performance is maintained to minimise the environmental impact of both the products and the manufacturing process. Note Printing Australia recognises the primary significance of environmental responsibility as contributing both economically and culturally to sound business management and to good citizenship, and considers itself the world leader in the area of polymer currency production.

Some specific ways in which I understand Note Printing Australia now carries out its commitment to environmentally safe production include: monitoring an effective pollution control system for all emissions to the atmosphere, controlling all noise levels, maintaining an effective trade waste plant, controlling discharges in order to protect adjacent waterways and the local sewerage plant, minimising the amount of waste sent to landfill and maintaining an emergency response capacity for environmental accidents and chemical spills.

The rejected and worn out polymer notes can nowadays be granulated and then *pelletised* and completely recycled as raw material for sale, to enable others to manufacture plastic household and industrial products. This was achieved through a joint project with the Royal Melbourne Institute of Technology, in an effort to get the best out of the notes' recycling potential. It was found that recycling of granulated polymer note waste was complicated by the presence of the inks and coatings, causing gassing problems at high temperatures. Once this problem had been overcome, the project successfully demonstrated a blend containing 25% of granulated note waste could be recycled for use in the injection moulding process. In turn the addition of certain additives allowed products to be manufactured without the presence of fault lines.

This talk has dealt with some numismatic aspects as well as some non-numismatic aspects of a familiar and daily-used numismatic item, the Australian banknote. It has gone into some detail on the place with which for many years I was associated, Note Printing Australia, and

has even made some bold prescriptions on what numismatists should call banknotes, now that paper is no longer used to make them.

In closing, I would ask you to consider the following: the next time you go for a leisurely stroll through a recreational area you may be tempted to sit down on a solid plastic park bench, near a plastic rubbish bin, or alongside a plastic drain cover. It is quite possible that these everyday items have been made from a few hundred thousand pre-loved and recycled, 'environmentally friendly', modern banknotes.

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